

1976
annual
report

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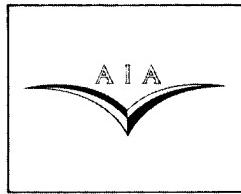
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Message to the Membership



KARL G. HARR, JR.

In terms of current dollars, the aerospace industry's sales in 1976 reached record proportions, but the gains were illusory due to the continuing erosive effect of inflation.

Sales totaled \$29.3 billion, exceeding the previous all-time record of \$29.0 billion achieved in 1968. Measured in constant 1968 dollars, however, 1976 sales were actually more than \$11 billion below the record year.

Gains in 1976 occurred primarily in military and general aviation aircraft. The major decline was in commercial transport aircraft, reflecting inadequate airline earnings and a slow-paced economic recovery.

Export sales, which have mounted steadily in every year since 1972, remained a consistently bright element of the industry's performance. In 1976, aerospace exports reached a new record level of \$7.9 billion, up from \$7.8 billion in the preceding year. The aerospace trade balance for 1976 similarly reached a new high of \$7.3 billion, which compares with the previous record of \$7 billion attained in 1975. Contrary to the general public belief, civil aerospace exports far outstripped military sales abroad. Military exports amounted to \$2.2 billion, or less than 28 percent of the total.

Other economic highlights of 1976 included:

- Backlog as of year-end 1976 was more than \$3 billion higher than at the end of the preceding year. Here again, however, the inflation factor must be applied. In terms of constant 1968 dollars, 1976 backlog was only \$1 billion above the 1975 figure. U.S. government accounted for more than \$23 billion, or 60 percent of the total backlog.

- Employment, based on data compiled by the Bureau of Labor Statistics and reports from AIA member companies, continued to decline. Total employment at the end of 1976 was 893,000, down from 925,000 at year-end 1975.

- Industry net profits as a percentage of sales (after taxes) climbed to 3.5 percent, up from 1975's 3.0 percent. Aerospace profits remained low, however, in comparison with the estimated 5.3 percent for all manufacturing industries.

- By major categories, the \$29.3 billion sales for 1976 breaks down to \$15.7 billion for aircraft and related equipment, \$5 billion for missiles, \$3.4 billion for space equipment and \$5.2 billion for non-aerospace products produced in aerospace facilities. The latter figure represents an all-time high and continues the pattern of consistent growth that has occurred in every year since 1971.

Among significant industry matters addressed by AIA during the year were:

- The Aerospace Technical Council played a major role in development of an Office of Management and Budget circular on major systems acquisition policy. Prepared by the Office of Federal Procurement Policy (OFPP), the circular outlines how all federal agencies will acquire major systems in the future. AIA was also working with OFPP on preliminary draft of another major OMB circular, Federal Research and Development Acquisition.
- Through the American National Metric Council's Aerospace Sector Committee, AIA continued to assist in coordinating metric conversion planning throughout the aerospace community.
- Through the Aerospace Procurement Service, AIA/CODSIA continued active liaison with government agencies and Congressional committees relative to policies, procedures and practices regarding Independent Research and Development/Bids and Proposals.

◦ Through the Aerospace Operations Service, AIA participated in the preparation of a report for the Navy on Automatic Test Equipment. Prepared by a committee of 109 technical and management experts from five associations, the report treats all aspects of automatic testing of Navy weapons systems and equipment during the years 1981-85. The three-volume report was nearing completion at year-end.

During the year, AIA testified before Congress or submitted industry position statements on a number of subjects of direct interest to the industry, including:

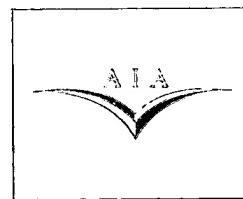
- Testimony by the undersigned on the future of aviation before the House Science and Technology Subcommittee on Aviation and Transportation Research and Development.
- Testimony by three industry officials representing AIA on proposed wind tunnel projects before the abovementioned subcommittee.
- A statement on Tariff Schedules 806.30 and 807.00, submitted to the House Ways and Means Subcommittee on Trade.
- A statement on extension of the Export Administration Act, submitted to the House International Relations Committee and to the Senate Banking, Housing and Urban Affairs Subcommittee on International Finance.
- A statement on the tax treatment of foreign source income, submitted to the Senate Committee on Finance.

- A statement on the inclusion of white collar workers in the Service Contract Act, submitted to the House Education and Labor Subcommittee on Labor-Management Relations.
- A statement on DoD Profit '76, submitted to the Joint Committee on Defense Production.

With the assistance of key personnel in member companies, AIA's staff maintained a high level of activity in various other areas of importance to the industry. Such activities are detailed in the following sections of this Annual Report.

Respectfully submitted,

Karl G. Harr, Jr.
President



Aerospace Operations Service

The Aerospace Operations Service is concerned with the management and technical aspects of manufacturing, quality assurance, and post-delivery product support. The five committees concerned are augmented by project groups, subcommittees, liaison panels, ad hoc groups, technical specialists and task panels of industry experts. They perform tasks related to Government, aerospace industry or commercial airline problems in the fields of policies, regulations, statutes and procedures. They initiate projects at the request of member companies, of government agencies, such as DoD, NASA or FAA, or of organizations, such as the Air Transport Association, to improve performance and seek resolution of issues of mutual concern.

The Aerospace Operations Service during 1976 continued a program of widely diversified projects and *ad hoc* studies pertaining to improvements in manufacturing productivity, quality assurance methods and techniques, weapon system support, commercial airline support and technical publications and communications techniques. Through liaison with governmental departments and agencies and other national and international associations, these projects and studies are being directed toward achieving advancements in the state of the art as well as mutual reductions in program costs.

Automatic Test Equipment

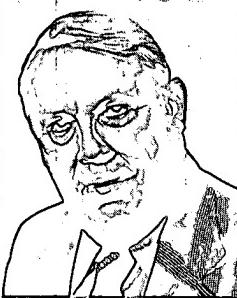
A report by industry on Automatic Test Equipment prepared for the Navy, comprising three volumes in the form of an Executive Summary, Technical Findings, and Management Considerations, was near completion at the end of the year.

Automatic Test Equipment is defined as all types of automatic and semi-automatic test, monitoring and diagnostic systems and equipment. This includes the automation of testing to permit on-line performance monitoring, fault isolation, and fault prediction.

The report was prepared by a committee comprising 109 technical and management experts from five associations (AIA, National Security Industrial Association, Electronic Industries Association, Western Electronic Manufacturers Association and the Shipbuilders Council of America) representing aircraft, electronics, test equipment, computer manufacturers and the academic community. The report treats all aspects of automatic testing of Naval weapons systems and equipment during the years 1981 through 1985.

Navy concern with logistic costs and operational readiness was a fundamental frame of reference and formed the basis for this project. The report presents conclusions and recommendations relative to all aspects of automatic testing that bear upon these factors. Throughout all of the specific conclusions and recommendations, there appear to be common recurring conclusions:

- The management of automatic test systems, and of prime systems as well, must be improved to the point where well-informed decisions are made at optimal times in the system life cycle--from concept to phase-out.
- The key technical requirement is "testability." The Navy



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McDonnell Douglas Corporation
Chairman, Spare Parts Committee



RICHARD F. OHLEMACHER
Hughes Aircraft Company
Chairman, Quality Assurance Committee



GILBERT D. MASTERS
McDonnell Douglas Corporation
Chairman, Manufacturing Committee



WALTER R. GEIB
The Singer Company
Chairman, Service Publications Committee



CHESTER W. CECIL
General Dynamics Corporation
Chairman, Product Support Committee

needs to develop weapon systems designed to permit accurate fault-detection and fault-isolation at minimal expense. Present systems do not meet these criteria.

- In anticipating the technology of 1981-1985, it is certain that increasingly capable and complex systems will prove to be virtually untestable unless a well-coordinated program is instituted to improve their manageability and testability.

The report contains specific conclusions in 13 areas of study and deliberation (seven in the R&D field and six in the management area) which support these three major conclusions, and also presents a wide range of recommendations for each of the disciplines.

Review of Specifications

Work has continued on responding to Department of Defense and other agencies on their request for industry review of proposed specifications, military standards, and regulations as well as follow-up by industry on requesting changes in Government documents that have been published and are found to be objectionable.

As in the past, they include work measurement standards, production management, non-conforming material, packaging and shipping and the most recent and very significant is a request for industry comments on "Draft Military Standard (MIL-Q-9858A)." The Department of Defense has been trying for several years to publish a military standard on Quality Program Requirements that would be acceptable to all services and industry. The recent study has been designated as a CODSIA Case and AIA has been assigned the project management.

Computer Aided Manufacturing (CAM)

The project to establish a long range plan for Computer Aided Manufacturing (CAM) was completed and the report presents a discussion of each project describing the unique features. It is segregated into these subject areas:

- Numerical Control
- Material Handling
- Design/Manufacturing Interface
- CAM Hardware
- Computer-Aided Planning
- Computerized Process Control
- Miscellaneous CAM Projects

The AIA report covers CAM activities from the stage of receiving a released engineering design to the stage of delivering manufactured parts for inspection. Within manufacturing, it contains design processes for tool design; computer technology for numerical control; group technology for production engineering; material movement, shop loading and tool and cutter systems for the factory. Some projects also reflect educational workshop activities, seminars with Government and industry, review and analysis of pertinent reports and the development of standards.

The need for a long range plan matured when the computer aided manufacturing technical specialists found it necessary to display a historical track of the AIA projects

and interests, to divide the many projects into major technological areas, to provide a documented plan that will easily display the future plans for CAM in AIA and to provide a continuously maintained plan which can readily accept changes.

The report will be updated annually.

Integrated Computer Aided Manufacturing (ICAM)

As a logical next step to Computer Aided Manufacturing, the U.S. Air Force is turning its attention to *Integrated Computer Aided Manufacturing*.

A national need exists to increase the capability, reduce costs, and increase the productivity of the U.S. manufacturing industry as a major supplier to DoD and other agencies.

The Air Force has asked several associations and societies to assist in this effort. They are: AIA, Society of Manufacturing Engineers, American Defense Preparedness Association, Numerical Control Society, Electronic Industries Association and Computer-Aided Manufacturing-International. Work has begun on formulating the charter for an "Industry Review Panel," selecting individuals to represent the various associations/societies and determining the specific scope of work to be undertaken.

The Industry Review Panel is to represent the industrial community to ensure the ICAM program recognizes the present computer aided design and manufacturing capabilities of industry, and assist in coordination of information among universities, industry, and Government.

Laser Cutting of Aluminum Alloys

The vast majority of parts fabricated by the aerospace industry from flat sheet metal blanks are produced from aluminum alloys by conventional manufacturing methods such as blanking, routing, or sawing. The need to establish improved methods, such as laser cutting, for fabricating aerospace parts produced from high-strength materials should also be applicable to the large volume of aluminum parts, particularly if overall program cost reductions are to be realized.

Today's laser technology is sufficiently advanced to provide the required manufacturing capability to achieve cost reduction goals; however, the total effect of laser power melting on the physical and metallurgical properties of aluminum alloys is still an unknown factor which must be determined prior to any system implementation considerations.

Recognizing the extensive test program required to provide such base data and the duplication of man-hours if performed individually, "Process Evaluation—Laser Cutting of Aluminum Alloys" project, was approved by the Manufacturing Committee. The objective was to "determine the effect of laser power melting on the physical and metallurgical properties of aluminum alloys, common to aerospace products, necessary to establish process parameters for the application of laser cutting to aerospace manufacturing methods." Seventeen representatives of

nine aerospace companies participated in this effort.

A report was issued covering six technical fields:

- Fatigue Test
- Notched Fatigue Test
- Tensile Test
- Corrosion Test
- Bend Test
- Metallurgical Examination

A proposed Work Statement was prepared and sent to Air Force Materials Laboratory for consideration.

It has been recommended that the Manufacturing Committee implement the proposed joint AIA/Air Force Project as a Phase II effort.

Quality Resources Study

The annual survey of quality costs was conducted by AIA, providing quality management a tool and a reference point for the many company functions concerned with quality costs and staffing.

The data provided by the study shows valid comparisons with prior years with changes and trends in the cost of quality assurance.

As in previous reports, the 1975 study includes only data for the year reported. Trend analysis is left to each company in comparing its relative position with the reported data and with data previously reported. The "Quality Resources Study" replaces the "Quality Assurance System" previously produced annually.

End Item/Spares Concurrent Procurement

To assure timely availability of spares assemblies for operational systems support, an AIA study was completed during 1976. It recommended that guidance instructions be provided that would specify the exact items and quantities of spares parts assemblies to be provided concurrent with the end item(s) delivery schedule.

Spare parts orders are usually placed later in a program from the effective date of the system hardware, causing separate spares procurement and production cycles which increase the cost of the major weapon system and its spare parts.

Further activities will include the coordination and formal submission of the report to DoD.

Airlines Technical Glossary

Periodic revision of the World Airlines Technical Operations Glossary is the product of a continuing airline/manufacturer coordination program which has been developed jointly by AIA, AECMA (Association Europeene des Constructeurs de Materiel Aerospacial), ATA (Air Transport Association) and IATA (International Air Transport Association).

The intent of this glossary is to foster improved worldwide interindustry communications through the use of common definitions for airline maintenance and engineering, and manufacturer engineering and product support terms.

Since the initial edition of this Glossary in 1970, operat-

ing experience has revealed the need for regular updating in order to reduce inconsistencies with definitions contained in the ATA specifications for supply/data processing and manufacturers' technical data. In support of this objective, AIA recommendations were submitted to ATA during November 1976 for review in preparation of the seventh edition of the glossary which is scheduled for release during 1977.

Air Transport Association Liaison

AIA members continued their joint review activities with their counterparts in the Air Transport Association (ATA) in the areas of product support, supply information, data processing and technical data publications.

These efforts were directed toward improving the manufacturers and suppliers implementation of airline requirements. Some of these efforts also involved coordination with foreign trade associations such as the AEA (Association of European Airlines), the SBAC (Society of British Aerospace Companies), the French GIFAS (Groupement des Industries Francaises Aeronautiques et Spatiales) and the German BDLI (Bundesverband der Deutschen Luft-und Raumfahrtindustrie).

During a series of meetings early in the year, AIA and ATA members refined and reviewed improvements in lead-time and spare parts priority ordering instructions with the ultimate objective of reducing processing and inventory costs to both the supplier and airline user. Subsequently, agreement was reached for the acceptance of a uniform measure of both supplier and operator performance in fulfilling lead time requirements.

During 1976 the latest edition of the World Airline Suppliers' Guide was issued by ATA. This Guide plays a prominent role in providing assistance to the manufacturer/supplier by establishing a single outline of policy for airline customers.

As anticipated, it incorporated a number of previously submitted AIA recommendations. This edition includes amendments to facilitate inventory data reporting, clarify procurement information and add supply data telecommunication instruction. Its utilization as a reference guide should make the next general procurement cycle more realistic and simpler.

In an effort to reduce aircraft time out of service, an AIA task group developed for ATA a series of procedures for more accurately reporting aircraft faults or malfunctions and for isolating and correcting these faults. Subsequently, these procedures were utilized by ATA as the basis for a series of standards to be incorporated in the ATA specification for manufacturers technical data.

These standards will provide effective fault reporting procedures for flight crew use and corresponding fault isolation procedures for mechanic use. It is anticipated that these standardized procedures will improve aircraft dispatch reliability by allowing for preplanning of parts, manpower and equipment.

AIA members with their British and French trade associations' counterparts have joined with ATA in a series of task

groups directed toward achieving more efficient implementation of the airline requirements now contained in the ATA supply/data processing specification. These groups will undertake studies relative to airlines/industry inventory management functions concerning spare parts control, tracking, monitoring and reporting support systems, how lead times are established and monitored, usage data for forecasting spare parts requirements and other appropriate inventory management subjects. Among the studies underway are development of specification instructions for tracking/monitoring and reporting supplier delivery performance and airline short cycle purchase orders. It is anticipated that the specification instructions will be approved for implementation during the latter part of 1977.

Air Force Proposed Data Automation Requirements Review

At the invitation of the Air Force, an industry review was initiated in 1976 on a proposed Air Force Automated Technical Order System requirements plan. This plan provides for the modernization of an outdated technical order system which does not meet the operational requirements of the Air Force and its future needs for weapon systems support in terms of timeliness, flexibility, accuracy and economy.

Presently, there are more than 80,000 technical orders for specific weapon systems, accessories, engines, etc., in the Air Force system, the majority of which are prepared by contractors, primarily by manual means, and are delivered in the form of negatives and reproducible copy.

Through a long range program extending over a five to fifteen year period, the proposed system would take full advantage of increased use of advanced state-of-the-art automated equipment, computers, programs, techniques and processes for maintenance diagnosis, publication, distribution, storage, retrieval, presentation and file maintenance of technical data.

Based upon member company responses, an AIA report has been prepared for presentation to Air Force officials in 1977. It notes that the scope of the ATOS program and the specialized inputs involved will place a severe burden on all but the largest contractors. While the approaches noted in the Air Force plan for ATOS development are in line with current trends relative to the communication of technical data, utilization of advanced systems and techniques for preparing, managing and transmitting data they address is only part of the ATOS development needs.

The remainder of these needs concern the development of guidelines/specifications to ensure that the data is properly presented and organized to facilitate usage in an ATOS environment, impart knowledge and gain user acceptance.

The AIA report will recommend the expertise of some of its members as an advisory panel to the Air Force to assure that the complex ATOS functions affecting industry will be initiated with economy and flexibility. In view of similar data automation plans under consideration in the Navy, a recommendation will be made to the DoD that the support

requirements for this type of activity should be coordinated among Air Force, other military services, and contractors.

Automated Publications Symposium

Reducing the cost of processing technical data is a common goal shared by publication and system managers. This goal has continued to stimulate computing companies supplying goods or services and system users to develop new automated publication methods and technology.

Aerospace computing industries and their system users spend substantial amounts of money annually in developing and implementing automated publications systems. As more opportunities to use automation become available, the need for a meeting with the computing industry and the product users to join in discussing new developments and trends was recognized. However, with so many options involving either large or small volumes of data, the system definition and selection process has become very complex. Therefore, a symposium where these complexities can be minimized through the exchange of ideas was held in 1976.

More than 215 representatives from AIA member companies, counterpart foreign trade associations, airlines publications managers (both domestic and foreign), com-

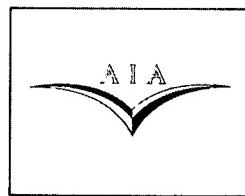
puting industry and government publication managers attended.

The objectives of this symposium were to:

- Bring together industry counterparts to exchange information on new developments.
- Examine state-of-the-art improvements in computerized publishing systems.
- Develop an understanding of trends and direction of system applications and technology.
- Provide a forum where systems in use could be evaluated.
- Provide access to specialized talent while discussing common problems.

Symposium discussions indicated that the cost of automation is decreasing while the application of computer-powered tasks is increasing. In view of rising labor and material costs, many of the tasks not previously economical for automation are now possible.

Computing industry representatives discussed a broad span of data processing alternatives in which the sales competition for mainframe, mini and microcomputers was intense. It was noted that tailored publication systems have evolved which fit specific purposes, have relatively low software development cost and increase reliability through reduced operator judgement factors.



Aerospace Procurement Service

The Aerospace Procurement Service supports the business management activities of member companies in the fields of accounting and financial management, contractor administration, procurement law, industrial relations, industrial security, materiel management, patents, proprietary information and small business. A Council and four Committees composed of senior executives of member companies provide experts to initiate actions seeking to improve business relationships or resolve problems of mutual concern to Government and industry.

During 1976, the Materiel Management Committee was transferred from the Aerospace Operations Service to APS. The Service now comprises the Procurement and Finance Council, Industrial Relations, Industrial Security, Materiel Management and Patent Committees.

Equal Employment Opportunity

In order to stay current with the dynamics of Equal Employment Opportunity laws and regulations, AIA joined the Equal Employment Advisory Council (EEAC), a voluntary non-profit association founded early in 1976 to promote the common interest of employers and the public in the field of non-discriminatory employment practices.

AIA and the Advisory Council complemented each others activities on two significant proposals: The Administrative Conference's "Public Comment on Consent Settlements," for which a number of AIA members provided EEAC with comments, and Office of Federal Contract Compliance Programs Revisions and Redesignation of Regulations pertaining to EEO. Both AIA and EEAC provided pertinent comments opposing many of the proposed changes, which are pending a decision.

Industrial Security

AIA through CODSIA presented recommendations on 15 proposed changes to the DoD Industrial Security Manual. Major changes were recommended in the areas of Consultants, Parent-Subsidiaries Acting as Multiple Facilities; Revision of DD Form 254 and Revision of DD Form 441's. AIA's proposed change to the Industrial Security Manual for Arms, Ammunition and Explosives, carried over from the previous year, was favorably implemented.

Occupational Safety and Health

Occupational Safety and Health Administration (OSHA) proposed numerous standards during 1976, including a major revision on noise standards.

AIA representatives appeared at hearings on the proposed noise standards, in liaison with the U.S. Chamber of Commerce. OSHA is studying the transcript of the hearing in preparation of issuing the final noise standards in 1977.

In addition, AIA submitted comments on eleven toxic substances, a statement on sulfur dioxide and a statement on ammonia.

In 1976, OSHA appeared to be devoting greater atten-



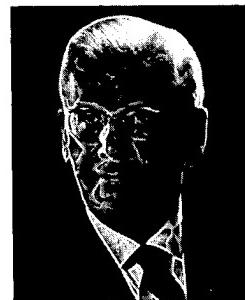
DONALD G. SPEYER
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DAN P. APPELBY
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tion to occupational health problems and it is reasonable to assume that, in future inspections, OSHA will be investigating exposures to toxic substances and impact-impulse noise sources as well as safety violations. Health standards will include: Monitoring and measuring of employee exposure; employee observation of monitoring; medical surveillance of employees; daily rosters of employees in regulated areas; and use of signs and labels, engineering controls, and recordkeeping.

DoD Profit Study

Principal outcome of a DoD study on defense industry profits (Profit '76) was a revision of the weighted guidelines set forth in the Armed Services Procurement Regulation which provides guidance to contracting officers in the development of prenegotiation profit objectives.

The guidelines were restructured to provide for the first time a factor recognizing the cost of facilities capital investment; however, this increase in cost recovery by contractors was offset by an overall reduction in profit rates.

The guidelines were also restructured to shift the emphasis from contract cost to risk and to add new factors relating to productivity and foreign military sales.

The Office of Federal Procurement Policy (OFPP) held hearings to determine whether there should be a uniform Government-wide profit policy and, if so, whether the policy should be structured similar to that of the weighted guidelines in the ASPR. The hearings also examined whether the allowability of facilities capital should be made applicable to all Federal agencies. AIA submitted a statement recommending Government-wide application of the allowability of capital cost and suggesting further study and review before deciding on a Government-wide contract profit policy.

The Joint Committee on Defense Production also held hearings on the DoD study as well as the revised DoD profit policy. AIA filed a statement directed principally to the problem of capital formation in the aerospace/defense industry and indicated that the revised DoD profit policy would not contribute to a resolution of this problem.

Warranties

A revision to the Federal Procurement Regulation (FPR) was proposed in 1975 which embodied the ASPR provisions on the limitation of liability for damages arising from defects in a contractor's products. Meetings with FPR staff resulted in a proposed revision to the FPR which is less complex and more effective than the current ASPR provisions.

AIA, through CODSIA, continued to work with the DoD Tri-Service Group and other DoD components on development of the Reliability Improvement Warranty Concept. General agreement was reached that a fixed price contract or a fixed price contract provision should not be required until that point in the procurement cycle when Mean Time Before Failure (MTBF) and other pertinent factors are reasonably predictable. Prior to that time, incentive and other appropriate types of contracts should be used.

Small Business Activities

Major projects progressed in conjunction with several Government agencies concerned with small business.

A study on how to combat inflation was completed and a guideline for voluntary participation in the Small Business Program currently is in process. Additional activities were directed to a review of data base forms for reporting on small business participation. A study of the Armed Services Procurement Regulation revisions dealing with "make or buy" as that concept applies to small business and a report on efforts in the aerospace industry to subcontract with minorities were also prepared.

Commission on Federal Paperwork

During 1976 a Commission on Federal Paperwork (COFP) was established to reduce the burden of Government paperwork imposed on industry.

Because of the broad spectrum of the Commission's activities, it was decided that AIA would concentrate its efforts in the field of procurement and to the extent practicable utilize existing AIA studies and papers. Association activities in connection with the Commission's efforts include subjects such as "Most Burdensome Reports", "Request for Progress Payments", (Form DD 195); "Materiel Inspection and Receiving Reports" (Form DD 250); "Data Management" (Form DD 1423); "Implementation of the Federal Reports Act of 1942" and "Management Systems in Federal Government Procurement."

Incremental submissions to the Commission were made during the year in order to keep pace with Commission activities. It is presently planned to complete AIA input by March 30, 1977, to provide adequate time for the Commission to consider AIA's recommendations for possible inclusion in its formal report presently scheduled for October 30, 1977.

The Commission plans to provide a follow-up mechanism, similar to that established for the Commission on Government Procurement, to follow up on its recommendations.

Value Engineering

A CODSIA project was initiated to review experience with the revised provisions of Armed Services Procurement Regulation (ASPR) governing Value Engineering (VE), which became effective in the spring of 1974. The project objective is improvement of the VE program, by making appropriate recommendations to the ASPR Committee.

In addition, AIA through CODSIA was successful in persuading the ASPR Committee to review the long standing practice of ASPR on rights in data in approved Value Engineering Change Proposals under which the Government acquires unlimited rights to the VE technical data. Proposed new language has been prepared by the ASPR Committee and referred to industry. The proposed revisions would substantially accommodate the industry's recommendations.

Independent Research and Development and Bid and Proposal

Active liaison was continued during the year with Government agencies and Congressional committees relative to IR&D/B&P policies, procedures and practices.

In February, a report was published on the IR&D hearings held by the Subcommittee on Research and Development of the Senate Committee on Armed Services, and the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee.

The report indicated that the DoD Director of Research and Engineering, and other government and industry witnesses, including Tri-Association Ad hoc Committee representatives, strongly supported the general adequacy of current IR&D management policies, and the need for adequate flexibility in IR&D management.

AIA/CODSIA continued liaison on IR&D/B&P matters with the Office of Federal Procurement Policy (OFPP). The OFPP has completed an in-depth study on IR&D and R&D policy guidance which was referred to the Office of Management and Budget (OMB) with approval and release for industry comment scheduled in 1977.

The study recommends that OMB support and/or sponsor IR&D legislation which stresses its science and technology characteristics.

AIA comments were also developed and transmitted to the Energy Research and Development Administration (ERDA) on its proposed revision of ERDA temporary Procurement Regulation No. 21, "Unsolicited Proposals." The proposed revision made reference to a cost participation policy, which had not yet been finalized or distributed for industry comment. This was pointed out to the Director of Procurement of ERDA that it was first necessary to consider the cost participation policy.

Product Liability

AIA activities to provide appropriate protection to the public and those having a potential legal liability arising from a catastrophic occurrence in air transportation continued during 1976. Legislation to effectuate AIA's concept was introduced in the Senate as the Air Travel Public Protection Program (ATPPP), but no hearings were held prior to adjournment of the 94th Congress.

ASPR Cost Principles

AIA during the year initiated a program seeking to revise those cost principles of the Armed Services Procurement Regulation (Section XV) considered to be inequitable or to cause unwarranted and unnecessary administration or implementation. Proposed revisions were suggested to the cost principles on Bad Debts; Contributions and Donations; Relocation; Valuation of Pension Fund Securities; Property Taxes; Selling Costs and others. The Association participated with CODSIA in commenting on DoD-initiated proposed changes to the cost principles.

Cost Accounting Standards

The Chairman of the Cost Accounting Standards Board

Indicated during Congressional hearings in 1975 that two standards — Inflation Accounting and Cost of Capital — would be issued to offset the adverse effects of the Depreciation standard.

In 1976, the standard on Cost of Facilities Capital (414) was promulgated and DoD policy revised to make such cost allowable. In computing the cost, the renegotiation interest rate is used which reflects the impact of inflation. However, a standard on inflation accounting was not published.

Government procurement agencies have implemented Standard 414 generally by offsetting the newly allowed cost in the profit rate.

AIA prepared a summary report on Cost Accounting Standards, primarily for distribution to members of cognizant Congressional committees, urging a review of the costs and benefits of Cost Accounting Standards. AIA also participated in the CODSIA-sponsored Second Industry

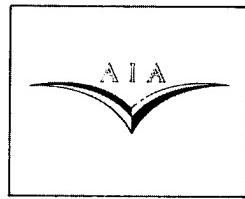
Survey of the Economic Impact of Cost Accounting Standards, which questions the need for or benefits of Cost Accounting Standards.

The Board has stated that it will consider whether to hold a Second Evaluation Conference in the fall of 1977.

Patents

AIA continued to present its view to Federal agencies and Congressional committees on the appropriate allocation of rights to inventions made under Government contracts.

This included presentations to the Subcommittee on Domestic and International Scientific Planning of the House Committee on Science and Technology. Additionally, efforts were continued to seek adoption of a proposed Federal Patent Policy developed by AIA through the medium of the Office of Federal Procurement Policy.



Aerospace Research Center

The Aerospace Research Center provides a special focal point and expertise within the Association through which the aerospace industry can comprehensively examine current and emerging issues of major importance. It conducts research, analyses and advanced studies designed to bring perspective and understanding to the issues, problems and policies which affect the aerospace industry and, due to its broad involvement in our society, affect the nation itself.

The Aerospace Research Center brings to bear the judgment, knowledge and depth of experience available within the industry, as well as the expertise of others prominent in the government, academic and other professional communities.

Consistent with its objectives, throughout 1976 the Aerospace Research Center (ARC) heightened its participation in projects concerning many important policy issues of interest to the industry. Increasingly the ARC is called upon to support the ongoing work of the Offices of Public Affairs, Legislative Affairs, and the various Councils and Services with substantive inputs in the form of review, background papers and supporting analysis.

During the year, the Center published an extensive two-volume report, "Aerospace Capital Formation," an analysis of the impact of inflation and depreciation on the U.S. aerospace industry. A comparative assessment of the public benefits of "Air Transportation" was also published by the Center in 1976.

In response to wide acceptance of "A Financial Profile of the U.S. Aerospace Industry," the Center is preparing an updated analysis of this issue for the 1965-1976 decade. This comprehensive report is scheduled for publication during 1977 as an in-depth study on research and development, which stresses the importance of this investment factor to long-term economic growth and the health of the aerospace industry in a changing environment.

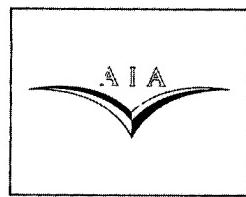
The Center supported implementation of AIA policy through government liaison on several major economic issues in 1976. Typical of these efforts were asset depreciation guidelines and international trade, particularly foreign military sales. Another major effort of ARC was the preparation of issue statements for the Democratic and Republican Platform Committees; a more detailed set of statements was drafted later for submittal to President Carter.

The Economic Data Service (EDS) of the Center provides the pulse point of aerospace data through periodic publication of industry-tailored evaluations of both public and private economic statistics. Regular features include *Aerospace Facts and Figures*, the Semi-Annual employment Survey and the Year-End Review and Forecast of the industry, as well as a comprehensive statistical series which includes international trade data, employment trends and government expenditures. EDS cooperated with the Council of Defense and Space Industry Associations (CODSIA) on a survey of CODSIA members to determine the impact of the Cost Accounting Standards Board promulgations on the defense industry. In addition, EDS serves as an information center and clearing house for

industry data, dealing with the press and government agencies as well as investment analysts and AIA member companies.

A more efficient information center for research and reference has evolved through reorganization of the AIA Library, a unit of the Research Center. The Library completed cataloging its 2,400-volume collection, which includes valuable legislative documents section as well as

strength in the areas of aeronautics, technology, economics and statistical source material. In addition, the closed files house background information for current projects in the form of annual reports, speeches, news releases and material on relevant organizations. Through these resources, numerous services are provided by the Library to AIA member companies, staff and the general public.



**Aerospace
Technical
Council**

The Aerospace Technical Council is the industry's top technical advisory body through which broad technical and management problems affecting both government and industry are reviewed and solutions are sought.

The major thrust of the Aerospace Technical Council in 1976 was assuring Government policy formulation concerning technical matters was congruous with industry objectives.

The development of major systems acquisition policy, providing for improved flexibility and innovation, remains a principal area of endeavor. AIA involvement is also broadening as technical management concerns, particularly standardization management, increasingly extend beyond national boundaries and require consideration in the context of international policies and activities. Actions are being taken to better fit U.S. aerospace standardization into the changing international standardization picture.

AIA is continuing its efforts to protect the future health of civil aviation by promoting the benefits of air transportation, and attempting to obtain technologically feasible environmental regulations and reasonable certification requirements.

Major Systems Acquisition Policy

The Council has played a major role in the development of an Office of Management and Budget (OMB) circular on major systems acquisition policy. This circular, prepared by the Office of Federal Procurement Policy (OFPP), and issued in April after five years of gestation, outlines how all federal agencies will acquire major systems in the future.

Intended implementation of Department of Defense regulations DoDD 5000.1 and DoDI 5000.2 are now undergoing careful scrutiny. The Council has maintained a close liaison with Department of Defense Research and Engineering with the aim of removal of objectionable sections and addition of desirable sections in these regulations.

Major new OMB circular, Federal Research and Development Acquisition, is being drafted by OFPP, and AIA has been working with that office on preliminary versions. Basically this document makes a concise justified declaration that federal support of research and development is good for the nation. Future R&D statements by OFPP will be appended to this circular, assuring consistency with the basic document.

RFP Improvement

AIA is maintaining its efforts devoted to the objective of improving Requests for Proposals (RFP's). Data is being collected through an RFP Improvement Survey, and re-

sults will be available in 1977. The current effort is aimed at acquiring implementation of DoD policy on providing draft RFP's for industry comment prior to their formal release. Survey results will indicate if further efforts are necessary in this area.

Engineering and Configuration Management

Progress is being made in both Government and industry in the development of cost effective changes to MIL-STD-480, Configuration Control, Engineering Changes and Waivers. A principal industry effort is the introduction of a "Parts Substitution List" into this and related documents. Such a list would allow contractors to identify substitute parts without requiring an Engineering Control Notice (ECN) for every substitution. It would allow industry to take advantage of bulk buying and multi-application of parts. Extensive application of such a concept would provide significant benefits.

Application of Military Specifications and Standards

Tailoring has long been promoted by industry as a means of reducing unnecessary contract costs due to misapplication of military specifications and standards. The concept is gaining ground within the DoD and is central to the recommendations of a Defense Science Board study on improving specifications and standards, to be released in 1977.

During the year, AIA representatives completed a report on tailoring which further clarifies the industry position. The report has led to a more detailed consideration of means to effectively accomplish tailoring. One such means is the restructuring of the format of specifications and standards.

Controlling proliferation of specifications and standards is the subject of an industry paper, currently being reviewed. The paper outlines industry's views on a set of functions which must be performed to reduce the proliferation of such documents.

Implementing Design to Cost

The concept of Design to Cost (DTC) has undergone a transition during 1976. Generally accepted earlier views held that the objective of DTC was to produce a product at a price that had been pre-defined and subsequently refined.

This price was basically a "manufacturing" price. Recently, however, inclusion of the operations and support costs as a basic part of the DTC goal, has been gaining ground. This concept, although not as all-encompassing, approaches the Life Cycle Cost (LCC) definition. Consequently, the interrelationship between LCC and DTC is less clear and is becoming an area of industry concern.

Management Systems and Data Requirements

The release of a Draft OMB Circular and Guide dealing with Management Systems and Data Requirements stemmed from a series of reviews and discussions between the industry and OFPP. The circular is currently under industry review. Among the many industry sugges-

tions, which have been incorporated, are the concepts of imposing added management systems and product data requirements only when they have been proven cost beneficial.

International Standardization

AIA is working to assess the changing climate in international standardization and to evaluate its effect on the industry. The impact of international standards on the design, certification, and marketing of U.S. military and commercial aircraft seems certain to increase.

Emphasis on NATO standardization, the trend toward multinational cooperation on major aerospace projects, metric conversion, and the GATT Standards Code are all developments forcing increased interest in international standardization activities.

A new leadership role in the International Organization for Standardization (ISO) was assumed in September 1976 when AIA acquired the Secretariat of TC 20, a key management focal point in world wide aerospace standardization. ISO standards are becoming increasingly important as they are the basis for many NATO standards. Additionally the proposed GATT standards code would require that such international standards be the masters to which all national standards must conform.

Regional standards, such as those produced by the Association Europeenne des Constructeurs de Materiel Aerospacial (AECMA) and the European Association of Aerospace Manufacturers are also assuming greater importance. AECMA is producing a series of new metric standards very similar to those being developed in the U.S. Furthermore, these standards are mandatory for the European Common Market. Exploratory discussions have been held with AECMA which may open a fruitful communication link with the U.S.

U.S. Metric Conversion

Although the U.S. Metric Board was established by legislation at the end of 1975, the Board has not yet been formed. Nominees to the Board were not approved before Congress adjourned in 1976.

The American National Metric Council's Aerospace Sector Committee, which is to be the principal aerospace interface with the Board, is proving to be an effective forum for coordinating conversion planning throughout the aerospace community. The Sector Committee, which was formed under the auspices of AIA, has representation from all segments of aerospace; the FAA, DoD, NASA, the airlines, suppliers, engineering and professional societies, and labor unions. Primary emphasis is being given to coordinating development of basic metric standards and specifications. The ASC maintains a log of all aerospace metric standards projects to provide visibility and avoid duplication of effort.

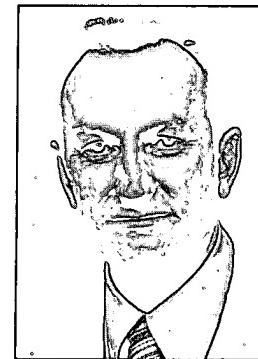
The ASC during the year identified basic systems level documentation requiring conversion and is contacting the responsible standards making bodies to determine their metrication plans. Quality assurance documents requiring



GORDON E. HOLBROOK
General Motors Corporation
Chairman, Aerospace Technical Council



F. A. CLEVELAND
Lockheed Aircraft Corporation
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DR. M. BARON T. GEORGE
AVCO Corporation
Chairman, Technical Specifications
Division



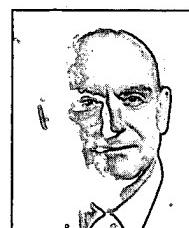
MARTIN KRUPITSKY
Lockheed Aircraft Corporation
Chairman, Transport Airworthiness
Requirements Committee



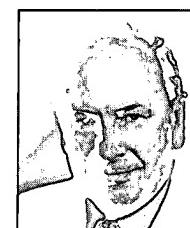
WILLIAM W. DAVIS
The Boeing Company
Chairman, Electronic Systems Committee



AUBERT L. MCPIKE
McDonnell Douglas Corporation
Chairman, Aircraft Noise Control Committee
Chairman, Civil Aviation Advisory Group



T. E. DUMONT
United Technologies Corporation
Chairman, Rotorcraft Airworthiness
Requirements Committee



FRANCIS E. BRYANT
IBM Corporation
Chairman, National Aerospace Standards
Committee



WILLIAM W. THOMAS II
RCA Corporation
Chairman, Standardization Management Policy Group



WALTER E. HENSLIGH
Lockheed Aircraft Corporation
Chairman, Flight Test Operations
Committee



WILLIAM W. METZGER
RCA Corporation
Chairman, Materials and Structures
Committee

J. F. KELLY
IBM Corporation
Chairman, Technical Management Committee



WILLIAM F. SPATZ
The Garrett Corporation
Chairman, Propulsion Committee

conversion have been identified. An assessment of problems associated with the adoption of the metric system in the area of flight operations also is being made.

DoD/Industry Metrication

The DoD issued a directive late in 1976 which sets policies to introduce the metric system at an evolutionary pace within DoD. It provides for use of metric units in design of new weapon systems and equipment when there are no technical or cost penalties.

Progress is being made on assigned tasks in the joint AIA/SAE/DoD effort to develop basic metric hardware standards in anticipation of needs in the early 1980's. Standards for metric nuts and bolts are soon to be released by the NASC.

National Aerospace Standards

NAS 10001, Preferred Metric Units For the U.S. Aerospace Industry, was published late in December ushering in the new 10000 Series, reserved for metric National Aerospace Standards.

During 1976, five other new standards were published and thirty-seven existing standards were revised. In all, these comprise a series of more than 1,300 voluntary, industry-established standards defining mechanical and electrical hardware, structural fasteners, numerically controlled machine tools, cargo pallets, and airport planning.

Civil Aviation

The reorganized Aviation Division, which groups all civil aviation activities related to development, operations, regulatory, and environmental functions, has maintained a high level of activity during its first full year of operation.

A report, "Air Transportation — Comparative Assessment of its Public Benefits," was published in 1976 by the Aerospace Research Center. The report, which has been widely distributed, defines major attributes of air transportation and its value to the U.S. and other economies.

AIA positions were developed for hearings held by various Congressional subcommittees. Of particular interest were the hearings of the Subcommittee on Aviation and Transportation Research and Development on the future of aviation. This Subcommittee's report is now being reviewed by AIA.

In meetings with the National Transportation Safety Board on the possibility of adapting the NASA flight simulator to accident investigation, AIA has expressed concern as to the advisability of this move. A joint conference is planned in 1977 to attempt to resolve the differences of opinion.

Environmental Considerations

A major commitment of resources was made to prepare for the Environmental Protection Agency hearings on proposed aircraft exhaust emission requirements, effective in varying degree from now until 1979.

The proposed requirements would impose severe economic and operational penalties on the airlines, includ-

ing a significant increase in fuel consumption. Industry believes that the technology will not be available in the 1977-1979 time period, which would permit reduction of emissions to the levels proposed by the EPA. The proposed requirements may possibly be deferred to take advantage of information from current development programs.

AIA is working with the FAA, International Civil Aviation Organization (ICAO) and the EPA to develop practical aircraft noise restrictions. Efforts have been made to coordinate FAA requirements with the proposed international requirements of the ICAO.

More efficient growth versions of transport aircraft, which have traditionally contributed to the orderly development of air transportation, could effectively be barred from airline service by FAA and ICAO proposed noise changes. Counterproposals providing for equitable treatment of derivative versions of transport aircraft have gained limited acceptance by ICAO.

Propulsion Systems Regulations

AIA is continuing an effort to develop a rational guide for the unification and simplification of military service engine requirements. New developments within the Air Force require that this activity be continued at least through the first half of 1977.

An FAA study on rotor burst containment in turbine engines might lead to regulations of major concern to the propulsion industry. Industry believes that the emphasis should be on designing rotors for long burst-free life, not on providing for containment of possible rotor burst. This position is supported by airline operating experience.

New amendments to Federal Aviation Regulations are making turbine engine certification more difficult. An in-depth study of these new requirements has been made and recommended changes have been submitted to the Administrator.

Airworthiness Standards

AIA representatives are working with the Federal Aviation Administration and other organizations to develop airworthiness standards for civil transport airplanes and rotorcraft.

A revision to the transport aircraft fatigue compliance criteria has been developed jointly, reflecting current industry practice. This U.S. proposal will be presented for discussion at an FAA-sponsored international meeting, as a counterproposal to European recommendations presented to ICAO which far exceed current U.S. regulations and practices.

FAA guidelines for certification of structures using composite materials for use in civil transport airplanes and rotorcraft are being jointly developed in another FAA/industry program. These guidelines will allow aircraft designers to utilize the advantages of this new materials technology, such as reduced weight, cost and fuel savings, while assuring a continued structural integrity equal to or better than that of conventional materials.

FAA, NASA and industry organizations are working toward the improvement of interior furnishings materials and fire protection for the cabins of transport category airplanes. A combined hazard index is being developed for cabin materials which takes into account the material resistance to flammability, smoke, and toxic gas emission. AIA representatives also are providing industry expertise and recommendations in areas of runway traction, cargo loading devices, system design analysis and reliability, landing gear components, and thrust control systems.

Electronic Systems

AIA continued in 1976 to participate actively in the tri-service-AIA-EIA working group for evolutionary updating and improvement of 36 of the 71 MIL-STD-454 design standards for electronic systems. Four new standards are also being developed.

Institutionalizing of the development, coordination and maintenance of these design requirements in a tri-service-industry working group has provided a system with several unique features which, over a 16-year period, has produced outstanding results.

Some of these unique features are: segmented format; effective tri-service industry focal point; workload shared by 12 military service components and AIA and EIA; orderly MIL-STD-454 revision on 2-year cycle with partial revision every six months in form of a specification notice.

AIA has recommended that this system be considered by the DoD for institutionalizing coordination of other broad areas of aerospace requirements to provide an effective focal point for meaningful and cost effective tri-service-industry specification development and coordination.

Microelectronics

With the cooperation of key Government representatives and microelectronic producers, AIA has moved to reduce the costly proliferation of nonstandard microcircuits which results from non-availability of MIL-SPEC microcircuits from qualified sources.

Those actions include: issuance of expedited interim

specifications for use pending achievement of full qualification; streamlining MIL-SPEC release and procedures for part qualifications and qualification retention; significant reduction in the amount of testing required for quality conformance inspection, without loss of product verification. Furthermore, a major revision of Linear MIL-SPECS and the issuance of a more restricted Preferred Parts List are being undertaken. The Defense Electronic Supply Center has increased its manpower for these specification and qualification actions.

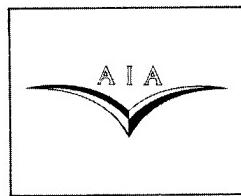
By the end of 1977, industry-wide survey results are expected to establish both short- and long-range future microelectronics requirements for systems, parts, and technologies. Recommendations will also be established on how these requirements can best be implemented.

Materials and Structures Requirements

Industry review of Government material, process, and structural design criteria specifications provides the government preparing agencies with current user experience and advice, and results in acceptable, usable requirements at minimum cost.

AIA has been working with representatives of the Air Force to incorporate into structural design criteria documents a "damage tolerant" philosophy that results in an improved structural integrity and service life at a minimum cost impact. Current programs include strength criteria, fleet monitoring, fatigue design handbook, and structural design criteria for pressurized structures.

The materials and process specification review program covered such items as aluminum, steel and titanium alloys, soldering requirements, plastic laminate and honeycomb materials, corrosion protection, and environmental criteria. AIA is also assisting the Materials Panel of the Defense Material Specifications and Standards Board, and the National Materials Advisory Board of the National Research Council in studies to improve specification development and utilization of industry resources and documents.



International Service

The International Service is a guidance and coordination point for the exporting segment of the aerospace industry. Operating through the International Council, its primary activity is serving as a medium for the exchange of views between industry and government agencies to assist in creating, within the national interest, the optimum environment for increasing aerospace exports.



RONALD M. MURRAY
Hughes Aircraft Company
Chairman, International Committee

The state of international aerospace business during 1976 can be described as double-edge—a high level of sales, an imposing array of new products, an increasing number of customers—but steadily tightening controls by government.

The total value of aerospace exports in 1976 was \$7.9 billion, up from the record \$7.8 billion of 1975. However, the 1977 projection by the Commerce Department is for \$8.4 billion, an increase of 6 percent. As to the breakdown between civil and military exports, military shipments account for 28 percent versus 72 percent for civil. Missiles were the biggest gainer for 1976, projected for the year at nearly \$480 million. Aerospace exports in 1976 provided for 240,000 jobs. Aerospace imports were valued at \$576 million, leaving a projected positive trade balance for aerospace of \$7.3 billion, and again making the aerospace industry the largest single manufacturing contributor to the nation's trade balance.

The 1976 Aerospace Export Environment

The national policy promoting international trade almost disappeared in 1976. Export expansion and promotion were not in favor in Congress or the Executive Branch. The President's Council on International Economic Policy was phased out; the Export-Import Bank policy changed from one of export expansion to a "bank of last resort" approach; DISC, the only export tax incentive in the history of the nation, was drastically cut by Congress; Congress imposed further restrictions on military sales; and Congress and the State Department imposed burdensome reporting of business details on exports.

Export Control Legislation

Public Law 94-329, "The International Security Assistance and Arms Export Control Act of 1976," was enacted June 30, 1976, and the two provisions that became significant to the aerospace industry were: 1. exceedingly detailed reporting requirements concerning commissions and contributions made by prime contractors, subcontractors, vendors, and agents; 2. programs over \$25 million involving major defense equipment to non-NATO countries must go through the FMS channel (government-to-government).

Because of industry concerns about being able to meet these new requirements and about the dangers to proprietary information (under the Freedom of Information

Act), AIA took the lead in establishing a Council of Defense and Space Industry Associations (CODSIA) task group to represent industry. Subsequently, AIA, on its own behalf, protested State Department's proposed regulations both by letter and in a public hearing on the matter. The regulations were changed in three ways: first, the effectiveness was postponed two months to allow time for working out the mechanization; second, some of the thresholds for reporting were raised to reduce the tremendous amount of paperwork; and third, an escape clause was added which allows State, at its direction, to issue export licenses without all the detailed data.

Technology Export

During 1976 the Defense Department presented to the President's Council on Export Technology a program for the implementation of the Defense Science Board Report on controlling strategically critical technologies (also known as the "Bucy Report"). The program began to identify the principal technologies that require export control, and AIA began developing improvements in the administration of the export control process.

The International Council developed the aerospace industry's recommendations on the Export Administration Act for the House and Senate Committee hearings held during 1976. This particular legislation dealt primarily with the export control of civil aerospace products.

The New Tax Law

The Tax Reform Act of 1976 impacted heavily on U.S. firms whose products require overseas-based U.S. marketing and technical personnel. In the new law, Section 911 of the Internal Revenue Code reduced the amount of overseas income which may be excluded, raised the tax rates on income above the excluded income, and made ineligible for exclusion income received outside the foreign country where earned.

These provisions placed an increasing and inequitable tax burden on U.S. private citizens on foreign assignment, which in turn presented an expensive problem to their employers. The end result is the U.S. companies have become less competitive with foreign companies, which are not so burdened by their governments. The United States is the only industrialized country which taxes income earned by its citizens residing and working in another country.

The International Council sponsored a joint effort with the Procurement and Finance Council to explore this in-

equitable tax issue, and recommended that member companies provide the IRS with comments on proposed regulations.

Liaison with Labor

The International Council stepped up its efforts during 1976 to work with labor on mutual problems. Due to the widespread misunderstanding of military exports, the Council submitted to the International Association of Machinists and Aerospace Workers a report (in preparation for joint discussions) explaining the background and importance of Foreign Military Sales.

International Air Shows

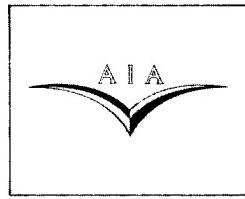
The AIA Public Affairs Council proposed the formation and activation, prior to the end of 1976, of a committee within AIA to deal authoritatively with officials of major air shows, foreign and domestic, and to work with U.S. Government agencies to assure equitable treatment of U.S. exhibitors in such events. This proposal was approved by the International Council, and was subsequently approved by the AIA Board of Governors.

ITAR Recommendations

In 1976 the International Council served as the aerospace industry focal point for developing recommendations and responding to proposed changes in the International Traffic in Arms Regulations, as administered by the State Department's Office of Munitions Control. An in-depth analysis was made of the extensive proposed changes in these regulations, and AIA submitted comprehensive recommendations concerning foreign agents, fees and contributions, proposed export sales programs, and the basic methods and procedures for the conduct of military export programs.

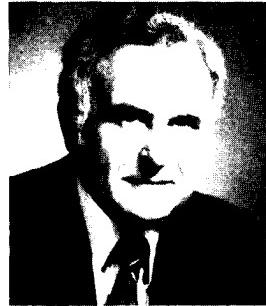
Other Activities

The International Service continued its program of cooperation with DoD, State, Commerce, NASA, FAA, Export-Import Bank, Treasury, and other agencies in areas where government and industry must work in the national interest. Some of the on-going activities conducted were: briefings to military and civil air attaches preparing for foreign assignment; submission of industry studies and recommendations on specific international trade issues; dissemination of both industry and government recommendations; and conducting meetings between Government and industry in the furtherance of international trade.



Office of Public Affairs

The mission of the Office of Public Affairs is to inform the public about the goals and accomplishments of the aerospace industry in support of national security, space exploration, technological leadership, civil aviation, commerce, international trade and other national goals.



NICHOLAS F. PENSIERO
RCA Corporation
Chairman, Public Affairs Council

The Office of Public Affairs in 1976 continued to center its information efforts on the relationship of the industry to the nation's economy and its major role in transportation, defense, space and other aspects of advanced technology. Special attention was given to exports, the competitive merits of air transportation and the inflation-created capital formation problems of aerospace. A substantial level of media inquiries, particularly on foreign military sales and industry economics, were serviced during the year.

Following are some of the major efforts:

Publications

Aerospace Magazine: This quarterly magazine covered a diversity of subjects related or of interest to the industry. The first issue featured highlights of NASA's study, "Outlook for Aeronautics," which set forth potential developments through the year 2000; aspects of applying metrics to aerospace; and a review of the 1975 economic performance of the industry. In late June, a complete issue was devoted to a photo-and-copy preview of the new National Air and Space Museum. In September, editorial focus was placed on economics with an opening article on the lack of economic literacy by Dr. Murray L. Weidenbaum. The balance of the issue was devoted to a profile of the economics of the aerospace industry. The final issue provided a progress report on the Space Shuttle and a feature setting the scene for commemorating in 1977 the fiftieth anniversary of Charles Lindbergh's historic transatlantic flight of 1927.

Aerospace Perspectives: This publication, issued periodically and presenting a single subject of importance to the industry, was published three times during 1976. The first summarized the highlights of a Department of Defense report to the Congress detailing Soviet technological gains and the U.S. research and development initiatives required to counter the challenge. A scenario of aeronautical developments in the 1980-2000 period ahead and a perspective on the patent system and the patent rights of government contractors completed the 1976 series.

General Media: Five "editorial type" releases were disseminated to the general media covering the following: a graphic portraying the major areas of federal spending proposed in fiscal year 1977; a second graphic charting the contribution of aerospace exports to the U.S. balance of trade; highlights of a Defense Department analysis of Soviet vs. U.S. technological strengths; an assessment on the significance of the Viking missions to Mars; and a

report on the impact of aerospace activities on education.

In addition to these, extensive media distribution was given to studies of the Aerospace Research Center on capital formation and air transportation and a special "primer" booklet on Independent Research and Development.

Other Publications: Publishing assistance was provided to the Aerospace Research Center for the 1976/1977 edition of *Aerospace Facts and Figures*, the economic data reference book of the industry. It continued to be published under the commercial, promotion, sales and distribution agreement with *Aviation Week and Space Technology*.

Early in January 1976, the 1975 *Directory of Helicopter Operators in the United States, Canada and Puerto Rico* was issued, followed by summer distribution of the 1975/76 *Directory of Heliports in the United States, Canada and Puerto Rico*. The 1976 *Directory of Helicopter Operators* was completed by year's end for January 1977 publication. The annual VTOL Aircraft Designation Chart and other special material related to helicopters was also disseminated during the year.

Education Services

Efforts continue to aid those actively involved in aerospace education at all curriculum levels. This section of the Public Affairs staff handles educational correspondence; conducts surveys through the Public Affairs Council as to company interests and involvement in aerospace, career, and economic education; communicates and cooperates with both aerospace and non-aerospace organizations involved in or providing educational services, and continues to analyze the potential educational resources of AIA staff and member companies.

Primary emphasis in 1976 was directed toward the creation and organization of the American Society for Aerospace Education to serve as the national organization under which earlier projects will continue and new projects be initiated. The programs and publications of the new Society have been very well received.

Since the initiation of the Education Services in 1973, significant progress has been made in the founding of such major programs as the following:

- *The National Council for Aerospace Education*, a national forum for aviation and space education.
- *The Directory of Aerospace Education*, a source book of materials and services for aviation and space education.
- *The Journal of Aerospace Education*, a monthly magazine for aviation and space education.
- *The American Society for Aerospace Education*, a membership organization for aviation and space education.

In addition to these major efforts, assistance has been provided to several other programs including the *Aviation Education Resource Center Program*.

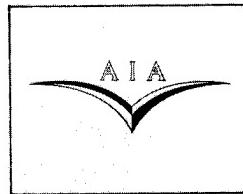
Staff member Wayne R. Matson who serves as Executive Director of the new Society, was elected President of the International Aerospace Education Committee which is composed of educational representatives of some sixty member nations of the Federation Aeronautique Internationale. He is the first American in the 71-year history of the FAI to be elected to this office.

Activities of President Harr

The Office of Public Affairs assists Mr. Harr in various aspects of the Association's public affairs activities. The President, in turn, attends and participates in numerous AIA Council and Committee meetings, briefing them on the major current projects of the Association.

Among Mr. Harr's public appearances during 1976, were participation in an American Institute of Aeronautics and Astronautics (AIAA) annual meeting conference on capital formation and two separate presentations, on industry economics and the U.S. industrial base, respectively, before the Industrial College of the Armed Services. He also participated in a government/business discussion at Washington University and presented an overview of aerospace at an investment seminar on the defense industry in New York in December.

A number of news releases were distributed during 1976 reporting upon testimony presented to the Congress by President Harr.



Traffic Service

Traffic Service is responsible for obtaining economical and efficient transportation facilities and service for the aerospace industry. Within its area of activity the Service represents the Association before transportation regulatory agencies, boards, associations of carriers and the courts.



DONALD NEEDLE
McDonnell Douglas Corporation
Chairman, Traffic Committee

In close coordination with a task force of the American Association of Highway Transportation Officials and the motor carrier highway heavy hauler industry, AIA's Traffic Committee in 1976 formulated a policy which sets forth the aerospace industry's objectives for obtaining uniformity of regulations which govern overdimension and overweight highway shipments.

Existing state regulations are a hodgepodge of conflicting requirements which impede and unnecessarily increase the cost of moving extreme dimension highway shipments. AIA members have a vital interest in this area because of their need for highway transportation of extreme dimension shipments in support of defense and space programs. Aerospace shipments move both on the equipment of AIA member companies and also on the vehicles of commercial highway carriers. Throughout the coming year the Traffic Committee will be working with state officials and carrier management in an effort to obtain implementation by the states of AIA's policy statement.

In another industry/government coordinated activity the Traffic Committee sponsored two seminars which were participated in by transportation and traffic managers of the Government. The seminars were held in Seattle, Washington, and Los Angeles, California, in May and October, respectively. The seminars were participated in by the Military Traffic Management Command, Air Force Systems Command, Air Force Space and Missile Systems Organization, National Aeronautics and Space Administration, and the Defense Contract Administration Services. Seminar participants reviewed the extent to which Government policies and requirements present problems to aerospace shippers.

The Traffic Committee also participated in several rule-making proceedings before the Department of Transportation's Materials Operations Bureau. The proceedings were concerned with regulatory requirements governing the handling and transportation of hazardous materials. The Traffic Committee conducted an analysis of the regulatory requirements and transmitted a statement of its views and recommendations to the Department of Transportation.

During 1976 the Traffic Committee conducted an analysis of the regulations of U.S. Customs Service and identified those which in the opinion of Committee members place unreasonable and unnecessary demands or restrictions on aerospace exporters and importers. The Committee will employ the material thus identified as dis-

cussion subjects for an industry/U.S. Customs seminar which is being planned in 1977.

Litigation

Throughout 1976 Traffic Service concentrated its efforts on reducing the costs and improving the services of regulated common carriers which are employed by AIA members in support of their logistics programs.

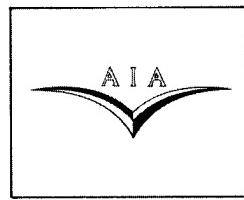
The program requires careful screening of carrier rate proposals and a continuing review of regulatory agency proceedings so as to permit a determination to be made whether AIA intervention in specific proceedings is required. During the past year Traffic Service represented AIA in 18 cases before carrier rate bureaus, six cases before the Interstate Commerce Commission, and in three cases before the Civil Aeronautics Board. During the same period *ad hoc* task forces of the Traffic Committee developed facts and prepared evidence to support AIA participation in cases. Members reported total savings of \$581,378 from the successful completion of such cases in 1976.

The following are representative of cases handled before the Federal regulatory agencies and carrier rate bureaus throughout the past year:

- Following action taken by household goods motor carriers to increase hauling rates three percent by means of an unlawful tariff publication, Traffic Service filed an opposition statement with the Interstate Commerce Commission. The ICC concurred in the position stated by AIA and ordered the carriers to cease and desist from assessing the unlawful charges.

- In a proceeding before the National Classification Board, Traffic Service protested the application of increased discriminatory freight rates which the motor carrier industry proposed to publish for application to shipments of aircraft tires. The protest was successful. The proposal was abandoned.
- Traffic Service filed several pleadings with the ICC and participated in oral argument in opposition to an ICC order requiring railroads and motor carriers to assess a one percent penalty charge against shippers who are unable to pay freight bills within seven days. The initial order was stayed pending reconsideration by the Commission. A final decision is pending.
- In another proceeding before ICC, Traffic Service was successful in obtaining an order requiring motor carriers to cancel tariff provisions which severely limited their liability for loss or damage to small shipments.
- In a rulemaking proceeding before the Civil Aeronautics Board support was given to a Board proposal which will require airline tariff publishers to adopt procedures to speed up the transmission of tariff changes to subscribers. At the present time, airline tariff changes are quite often received many days after they become effective and too late to permit the filing of protests with the CAB. A final order is pending.

At the present time Traffic Service is a participant in seven active proceedings before transportation regulatory agencies. Ten AIA cases are in various stages of handling before carrier rate bureaus.



AIA
Membership

MANUFACTURING MEMBERS

ABEX CORPORATION
 AEROJET-GENERAL CORPORATION
 AERONCA, INC.
 AVCO CORPORATION
 THE BENDIX CORPORATION
 THE BOEING COMPANY
 CCI CORPORATION
 The Marquardt Company
 CHANDLER EVANS INC.
 Control Systems Division of Colt Industries Inc.
 E-SYSTEMS, INC.
 FORD AEROSPACE AND COMMUNICATIONS CORP.
 THE GARRETT CORPORATION
 GATES LEARJET CORPORATION
 GENERAL DYNAMICS CORPORATION
 GENERAL ELECTRIC COMPANY
 GENERAL MOTORS CORPORATION
 Detroit Diesel Allison Division
 B. F. GOODRICH COMPANY
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 GOODYEAR AEROSPACE CORPORATION
 GRUMMAN CORPORATION
 HEATH TECNA CORPORATION
 HERCULES INCORPORATED
 HONEYWELL INC.
 HUGHES AIRCRAFT COMPANY
 IBM CORPORATION
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 AND ENERGY GROUP
 ITT Aerospace/Optical Division
 ITT Avionics Division
 ITT Defense Communications Division
 KAISER AEROSPACE AND ELECTRONICS
 CORPORATION
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 LOCKHEED AIRCRAFT CORPORATION
 MARTIN MARIETTA AEROSPACE
 McDONNELL DOUGLAS CORPORATION
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 PNEUMO CORPORATION
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RCA CORPORATION
 ROCKWELL INTERNATIONAL CORPORATION
 ROHR INDUSTRIES, INC.
 THE SINGER COMPANY
 SPERRY RAND CORPORATION
 SUNDSTRAND CORPORATION
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 TEXTRON, INC.
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 Bell Helicopter Textron
 Hydraulic Research
 THIOKOL CORPORATION
 TRE CORPORATION
 TRW INC.
 UNITED TECHNOLOGIES CORPORATION
 VOUGHT CORPORATION
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 Parker Aviation Division
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AIR CARRIER SERVICE CORP.
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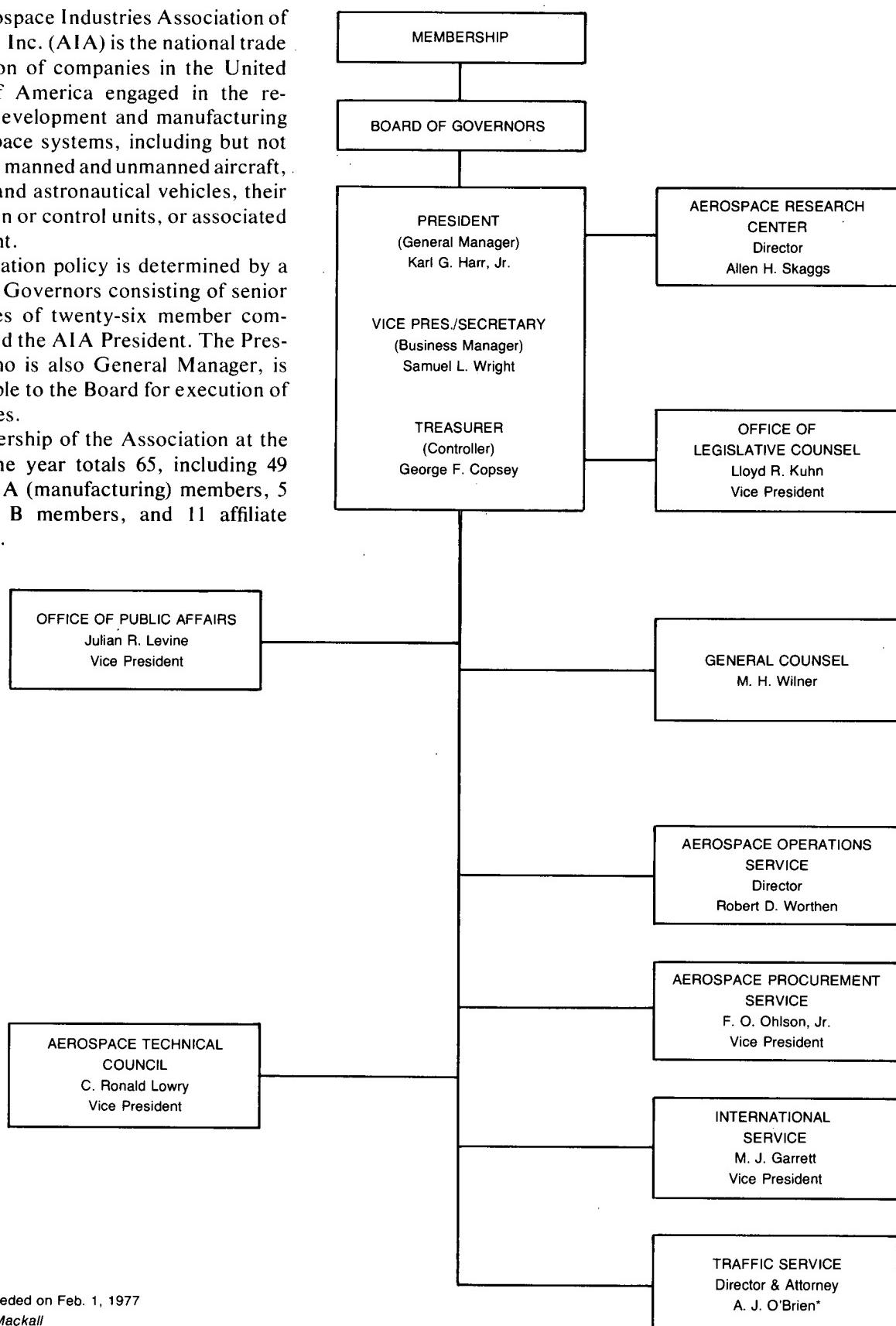
ORGANIZATIONAL CHART

(January 1, 1977)

The Aerospace Industries Association of America, Inc. (AIA) is the national trade association of companies in the United States of America engaged in the research, development and manufacturing of aerospace systems, including but not limited to manned and unmanned aircraft, missiles and astronautical vehicles, their propulsion or control units, or associated equipment.

Association policy is determined by a Board of Governors consisting of senior executives of twenty-six member companies and the AIA President. The President, who is also General Manager, is responsible to the Board for execution of its policies.

Membership of the Association at the end of the year totals 65, including 49 Division A (manufacturing) members, 5 Division B members, and 11 affiliate members.



*To be succeeded on Feb. 1, 1977
by Jane F. Mackall



AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1725 DE SALES STREET, N.W., WASHINGTON, D.C. 20036